

**Amendment and Response**

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Applicant(s): PAVLIDIS

Serial No.: 10/008,392

Filed: November 13, 2001

For: SYSTEM AND METHOD USING THERMAL IMAGE ANALYSIS FOR POLYGRAPH TESTING

A2 Sub B1  
3. (Once Amended) The method of claim 1, wherein transforming the thermal image data comprises transforming the thermal image data using a thermodynamic model where change of blood flow rate is inversely proportional to the square of skin temperature deviation from a core temperature of a human body.

A3 Sub B1  
9. (Once Amended) The method of claim 1, wherein the method further comprises providing measurement of one or more physiological parameters different than change of blood flow rate obtained using thermal image data, and further wherein determining whether the person is deceptive or non-deceptive comprises determining whether the person is deceptive or non-deceptive based on change of blood flow rate obtained using thermal image data and the one or more physiological parameters

10. (Once amended) The method of claim 9, wherein determining whether the person is deceptive or non-deceptive comprises:

making a preliminary determination of whether the person is deceptive or non-deceptive based on the one or more physiological parameters and making preliminary determination based on change of blood flow rate obtained using thermal image data; and

confirming one preliminary determination by comparing it to the other.

12. (Once Amended) A system for use in detecting deception of a person, the system comprising:

A4 Sub B1  
a thermal infrared image device operable to provide thermal image data of at least a region of a face of a person; and

a computing apparatus operable upon the thermal image data to transform the thermal image data to blood flow rate data for use in determining whether the person is deceptive or non-deceptive, wherein the blood flow rate data comprises change of blood flow rate.

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95 Sub B  
14. (Once Amended) The system of claim 12, wherein the computing apparatus is further operable to transform the thermal image data using a thermodynamic model where change of blood flow rate is inversely proportional to the square of skin temperature deviation from a core temperature of a human body.

96 Sub B  
20. (Once Amended) The system of claim 12, wherein the system further comprises means for providing measurement of one or more physiological parameters different than change of blood flow rate obtained using thermal image data, and further wherein the computing apparatus is operable to determine whether the person is deceptive or non-deceptive based on the blood flow rate data obtained using thermal image data and the one or more physiological parameters.

Sub B  
22. (Once Amended) The system of method of claim 20, wherein the means for providing measurement of one or more physiological parameters different than change of blood flow rate obtained using thermal image data comprises one or more invasive means for providing invasive measurement of one or more physiological parameters different than change of blood flow rate.

97 Cont'd  
23. (Once Amended) A polygraph method for use in determining whether a person is being deceptive or non-deceptive with respect to a response elicited from the person, the method comprising:

capturing thermal image data from at least one region of the face of the person during at least the elicited response;

transforming the thermal image data to blood flow rate data wherein blood flow rate data comprises change of blood flow rate over time in the at least one region of the face; and

classifying the person as deceptive or non-deceptive with respect to the elicited response based on the blood flow rate data.

24. (Once Amended) The method of claim 23, wherein transforming the thermal image data

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97 Sub B  
end

comprises transforming the thermal image data using a thermodynamic model where change of blood flow rate is inversely proportional to the square of skin temperature deviation from a core temperature of a human body.

98 Sub B

30. (Once Amended) A method for use in monitoring blood flow rate, the method comprising:  
providing thermal image data of at least a region of a face of a person; and  
transforming the thermal image data to blood flow rate information comprising change in blood flow rate.

31. (Once Amended) The method of claim 30, wherein transforming the thermal image data comprises transforming the thermal image data using a thermodynamic model where change of blood flow rate is inversely proportional to the square of skin temperature deviation from a core temperature of a human body.

99 Sub B

36. (Once Amended) A system for use in monitoring blood flow rate, the system comprising:  
a thermal infrared image device operable to provide thermal image data of at least a region of a face of a person; and  
a computing apparatus operable upon the thermal image data to transform the thermal image data to blood flow rate information comprising change in blood flow rate.

37. (Once Amended) The system of claim 36, wherein the computing apparatus is operable to transform the thermal image data using a thermodynamic model where change of blood flow rate is inversely proportional to the square of skin temperature deviation from a core temperature of a human body.